

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 31124 6/11/2001]

[Docket No. 98-NM-283-AD; Amendment 39-12248; AD 2001-11-06]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 747-100 series airplanes, that currently requires repetitive inspections to detect cracking of the outer chord of the body station (BS) 1480 upper and lower bulkhead and longeron splice fitting; repair, if necessary; and modification of the skin splice plate, the outer chord splice fitting, and the stringer interface of the lower bulkhead, if necessary. This amendment revises the applicability of the existing AD to add additional airplanes, requires accomplishment of previously optional inspections and clarifies those inspections, extends certain compliance times, and requires additional work in certain areas. This amendment is prompted by reports that fatigue cracking has been found in the outer chord of the BS 1480 bulkhead at the overwing longeron splice on airplanes not subject to the existing AD. The actions specified by this AD are intended to detect and correct fatigue cracking of the skin, splice fittings, bulkhead web, and outer chord of the BS 1480 upper and lower bulkhead and longeron splice fitting, which could result in reduced structural integrity of the fuselage and the inability to carry limit load.

DATES: Effective July 16, 2001.

The incorporation by reference of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; as listed in the regulations, is approved by the Director of the Federal Register as of July 16, 2001.

The incorporation by reference of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997, as listed in the regulations, was approved previously by the Director of the Federal Register as of October 7, 1998 (63 FR 50508, September 22, 1998).

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Rick Kawaguchi, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-1153; fax (425) 227-1181.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 98-20-25, amendment 39-10791 (63 FR 50508, September 22, 1998), which is applicable to certain Boeing Model 747-100 series airplanes, was published in the **Federal Register** on November 9, 2000 (65 FR 67311). The action proposed to

revise the applicability of the existing AD to add additional airplanes, require accomplishment of previously optional inspections and clarify those inspections, extend certain compliance times, and require additional work in certain areas.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Revise Statement of Unsafe Condition

One commenter requests that the FAA revise the statement of unsafe condition in various places in the proposed AD. The statement appears as follows in the proposal: “The actions specified in this proposed AD are intended to detect and correct fatigue cracking of the outer chord....” The commenter states that cracking has also been found in the skin, splice fittings, and bulkhead web, in addition to the outer chord. The FAA concurs with the commenter’s request, and has changed this statement accordingly in various locations in this final rule.

Give Credit for Revision 1 of Service Bulletin

One commenter requests that the FAA revise the proposed rule to refer to Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; in addition to the original issue of the service bulletin; as an acceptable source of service information for paragraph (a)(2). As justification for its request, the commenter states that operators of Boeing Model 747-400 series airplanes may not have the original issue of the service bulletin available. The commenter also asks the FAA to revise Note 2 of the proposed AD to refer to Revision 1.

The FAA concurs with the intent of the commenter’s request, but not with its justification because paragraph (a)(2) of this AD does not apply to Model 747-400 series airplanes. The FAA acknowledges, however, that Boeing Alert Service Bulletin 747-53A2390, Revision 1, has previously been approved as an alternative method of compliance for the actions in paragraphs (a)(1) and (a)(2) of this AD. To clarify this, the FAA has revised this final rule to add Note 2 after paragraph (a) of this AD, which states that Revision 1 has been approved as an alternative method of compliance for paragraphs (a)(1) and (a)(2) of this AD. (Subsequent notes have been renumbered accordingly.) Also, the FAA has revised Note 3 of this final rule (which was Note 2 of the proposed rule) to refer to Revision 1 as well as the original issue of the service bulletin.

Revise Various Paragraphs for Clarification

One commenter requests that, for clarity, the FAA make the following changes to the proposed rule, for the following reasons:

- Revise the phrase “in accordance with the flight safety inspection program” to “in accordance with the after[-]modification inspection program” in paragraphs (d)(2), (e)(2), and (g)(2), because the inspections following the Plan “B” modification should not be confused with the flight safety inspections for Plan “A.”
- Revise the reference to Figures 6 and 7 in paragraph (e)(1) of the proposed rule to refer to only Figure 6, because Figure 7 includes a one-time inspection already required under paragraph (e).
- Revise the reference to “Figure 3 or Figure 8” in paragraph (g)(1) to read “Figures 3 and 8,” because Figures 3 and 8 are both necessary to accomplish inspections per Plan “A.”
- Revise the statement “Except as provided by paragraph (b) of this AD” in paragraph (i) of the proposed rule to read “Except as provided by paragraph (a)(1)(i) or (b) of this AD.” Paragraph (a)(1)(i) also provides for repairs in accordance with a method approved by the Manager, Seattle ACO; or in accordance with data meeting the type certification basis of the airplane approved by a Boeing Company DER.

The FAA concurs with the commenter’s requests, and has revised the appropriate paragraphs of this final rule accordingly.

The same commenter requests that the FAA revise paragraph (d)(1), paragraph (e), paragraph (e)(2), paragraph (g)(1), and paragraph (i) to refer to the original issue of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997, in addition to Revision 1, as an acceptable source of

service information for the actions in those paragraphs. The commenter states that operators that accomplished requirements in accordance with the original issue of the service bulletin should receive credit for these actions.

The FAA concurs with the intent of the commenter's request, and has added a new note, Note 6, to this AD to state that accomplishment of the actions specified in paragraphs (d)(1), (e), (e)(2), (g)(1), and (i) of this AD, in accordance with the original issue of Boeing Alert Service Bulletin 747-53A2390, is acceptable for compliance with those paragraphs.

Revise Paragraph (i) to Require FAA-Approved Repairs

One commenter requests that the FAA revise paragraph (i) to require that damage beyond the repair limits specified in the service bulletin be repaired according to a method approved by the FAA. The commenter states that operators must contact Boeing or the FAA to ensure that damage beyond the specified limits is repaired so that the repair meets the FAA type certificate, and to have the repaired structure evaluated for reduced inspection thresholds and repeat intervals. (Structure at fastener holes that are oversized beyond the limits in the service bulletin will have reduced fatigue life, and cracks in the area may grow rapidly.)

The FAA partially concurs with the commenter's request. The FAA considers that, as proposed, paragraph (b) of this AD would already require that operators repair any damage outside the limits specified in the service bulletin in accordance with a method approved by the FAA or with data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative who has been authorized by the Manager, Seattle Aircraft Certification Office, to make such findings. However, the FAA finds that explicitly stating this requirement in paragraph (i) may clarify the requirements of that paragraph. Thus, the FAA has revised paragraph (i) in this final rule accordingly.

Add Grace Period for and Clarify Paragraph (f)(2)

One commenter requests that the FAA revise the compliance time in paragraph (f)(2) of the proposed AD from "Prior to the accumulation of 20,000 total flight cycles, or at the time of the next scheduled inspection of the lower bulkhead in accordance with paragraph (a)(2) of this AD, whichever occurs later," to "20,000 total flight cycles, within 1,000 flight cycles of the effective date of the AD, or within 10,000 flight cycles of the previous inspections accomplished in accordance with paragraph (g)(1) of this AD, whichever occurs latest." The commenter states that the proposed compliance time could cause airplanes to be grounded if an airplane has more than 20,000 total flight cycles but has not previously been inspected per paragraph (a)(2).

The FAA does not concur with the commenter's request. The compliance times in paragraph (f)(2) only apply if an inspection of the lower bulkhead *has* been done per paragraph (a)(2). If an airplane has not been inspected per paragraph (a)(2), then the compliance time in paragraph (f)(1), which includes a grace period of 1,000 flight cycles after the effective date of this AD, applies. No change is necessary in this regard.

Also in reference to paragraph (f)(2), the commenter notes that paragraph (a)(2) tells operators how, but not when, to inspect the bulkhead splice and bulkhead stringer interfaces. The FAA infers that the commenter is requesting that the FAA clarify the reference to paragraph (a)(2) in paragraph (f)(2) of this AD, and the FAA concurs with this request. Paragraph (a)(2)(ii) states that repetitive inspections are to be accomplished according to the flight safety inspection program, as specified in Figures 1 and 3 of the service bulletin. Figure 3 specifies the 10,000-flight-cycle repetitive interval. Therefore, the FAA finds that paragraph (f)(2) of this AD should refer to paragraph (a)(2)(ii) of this AD, and has revised that paragraph accordingly.

Increase Threshold for Inspections of Splice Area and Stringer Interface

One commenter requests that the FAA revise the proposed rule to increase the compliance threshold for the inspections of the splice area (from 16,000 total flight cycles) and the stringer interface (from 20,000 total flight cycles). The commenter suggests a threshold of 25,000 total flight cycles. The commenter bases its request on inspections of its airplanes, many of which had more than 25,000 total flight cycles at the time of inspection. Though cracks were found, all were small enough to be removed by oversizing holes or installing bushing repairs.

The FAA does not concur with the commenter's request. Service information from the airplane manufacturer shows that large bulkhead repairs have been necessary on airplanes in Groups 1 through 3 with as few as 19,387 total flight cycles. Also, replacement of bulkhead cap fittings has been necessary on airplanes in Groups 4 through 18 with as few as 13,206 total flight cycles. These findings are consistent with the fact that the subject cracking is caused by fatigue, which can initiate cracks on airplanes at a wide range of flight cycles. In view of this information, the fact that the commenter found no large cracks on its airplanes, though the airplanes had more than 25,000 total flight cycles, does not justify an increase in the compliance threshold. The FAA finds that the proposed compliance times are necessary to ensure an adequate level of safety, and no change to the final rule is necessary in this regard.

Request to Delete References to Appendices

One commenter requests that the FAA revise paragraphs (c), (d), (d)(1), and (d)(2) of the proposed rule, to delete the references to Appendices C and D of the service bulletin. The commenter states that these paragraphs apply to airplanes in Groups 1 through 3, but Appendices C and D of the service bulletin only apply to airplanes in Groups 4 through 22. The commenter also asks the FAA to revise paragraph (e) to delete the reference to Appendix B of the service bulletin, because paragraph (e) applies to airplanes in Groups 4 through 22, but Appendix B of the service bulletin only applies to airplanes in Groups 1 through 3.

The FAA does not concur with the commenter's request. The references to the appendices with which the commenter is concerned are included in those paragraphs as a citation of the full service bulletin reference (Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000). If a service bulletin includes one or more appendices which are numbered separately from the main body of the service bulletin, the Office of the Federal Register requires the FAA to specify all appendices as part of every full citation of the service bulletin. No change to the final rule is necessary in this regard.

Give Credit for Previous Accomplishment of Paragraph (e)

One commenter requests that the FAA revise paragraph (e) of the proposed AD to give credit for inspections accomplished prior to the effective date of the AD. The commenter specifically requests that the FAA include a grace period of 6,000 flight cycles since the last inspection in accordance with paragraph (e)(1) of the AD. (The repetitive interval for the subject inspection is 6,000 flight cycles.)

The FAA concurs with the commenter's intent, but notes that credit for previously accomplished AD actions is always given by means of the phrase included in every AD, "Required as indicated, unless accomplished previously." No change to the final rule is necessary in this regard.

Clarify Paragraphs (d)(2), (e)(2), and (g)(2)

One commenter requests that the FAA revise paragraphs (d)(2), (e)(2), and (g)(2) of the proposed rule to state, "...this paragraph postpones the repetitive inspection requirements..." rather than, "...this paragraph terminates the repetitive inspection requirements." The commenter states that the actions in the service bulletin do not terminate inspections, but rather postpone inspections until 10,000, 16,000, or 20,000 flight cycles, as applicable, after modification.

The FAA does not concur with the commenter's request. The sentences in the paragraphs to which the commenter refers specify termination of the repetitive inspection requirements under Plan "A." The paragraphs to which the commenter refers clearly state that inspections must still be accomplished in accordance with the after-modification inspection program. No change to the final rule is necessary in this regard.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 1,128 Model 747 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 259 airplanes of U.S. registry will be affected by this AD.

AD 98-20-25 applies to airplanes listed in Groups 1 through 3 of the service bulletin. The detailed visual inspection that is currently offered as one alternative for compliance with AD 98-20-25 takes approximately 16 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the currently required actions on U.S. operators is estimated to be \$960 per airplane, per inspection cycle.

For airplanes listed in Groups 1 through 3 in the service bulletin (34 U.S.-registered airplanes), the new detailed visual, ultrasonic, and open hole high frequency eddy current (HFEC) inspections of the upper bulkhead area that are required by this AD will take approximately 32 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of these inspections on U.S. operators is estimated to be \$65,280, or \$1,920 per airplane, per inspection cycle.

For airplanes listed in Groups 4 through 22 in the service bulletin (191 U.S.-registered airplanes), the new detailed visual, ultrasonic, and open hole HFEC inspections of the upper bulkhead area that are required by this AD will take approximately 22 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of these inspections on U.S. operators is estimated to be \$252,120, or \$1,320 per airplane, per inspection cycle.

For all airplanes listed in the applicability of this AD (259 U.S.-registered airplanes), the new detailed visual, ultrasonic, and open hole HFEC inspections of the lower bulkhead/stringer interface area that are required by this AD will take approximately 30 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of these required inspections on U.S. operators is estimated to be \$466,200, or \$1,800 per airplane, per inspection cycle.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a “significant regulatory action” under Executive Order 12866; (2) is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption “ADDRESSES.”

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39-10791 (63 FR 50508, September 22, 1998), and by adding a new airworthiness directive (AD), amendment 39-12248, to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "av-info.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2001-11-06 BOEING: Amendment 39-12248. Docket 98-NM-283-AD. Supersedes AD 98-20-25, Amendment 39-10791.

Applicability: Model 747 series airplanes, line numbers (L/N) 1 through 1254 inclusive, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (j)(1) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To detect and correct fatigue cracking of the skin, splice fittings, bulkhead web, and outer chord of the body station (BS) 1480 bulkhead at the overwing longeron splice, which could result in reduced structural integrity of the fuselage and the inability to carry limit load, accomplish the following:

RESTATEMENT OF REQUIREMENTS OF AD 98-20-25:

Repetitive Inspections and Repair

(a) For Model 747-100 series airplanes, L/N 1 through 87 inclusive: Prior to the accumulation of 10,000 total flight cycles, or within 45 days after October 7, 1998 (the effective date of AD 98-20-25, amendment 39-10791), whichever occurs later, accomplish either paragraph (a)(1) or (a)(2) of this AD.

Note 2: Inspections per Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; have been approved as an alternative method of compliance for the actions in paragraphs (a)(1) and (a)(2) of this AD.

(1) Perform a detailed visual inspection to detect cracking of the longeron splice fitting at BS 1480, the forward side of the outer chord of the BS 1480 bulkhead at the longeron splice fitting attachment bolts, and the aft side of the outer chord of the BS 1480 bulkhead within two inches above the outer chord splice fitting, on both the left and right sides of the airplane.

Note 3: Figure 5 of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997, and Revision 1, dated July 6, 2000, provides an exploded view of the structural components of the splice area for the purpose of parts identification. (However, paragraph (a)(1) of this AD does not require the inspection described in Figure 5.)

Note 4: For the purposes of this AD, a detailed visual inspection is defined as: “An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required.”

(i) If any cracking is detected, prior to further flight, repair in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or in accordance with data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative (DER) who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

(ii) Repeat the detailed visual inspection thereafter at intervals not to exceed 250 flight cycles, until the initial inspection required by paragraph (a)(2) or (d) of this AD is accomplished.

(2) Perform detailed visual, ultrasonic, and open hole high frequency eddy current (HFEC) inspections to detect cracking of the upper and lower bulkhead, bulkhead outer chord, web, skin, splice components, and lower bulkhead/stringer interface, in accordance with Figures 5 and 8 of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997. Additionally, for airplanes on which the inspection in “Plan B” of the service bulletin is accomplished, modify the skin splice plate, the outer chord splice fitting, and the stringer interface of the lower bulkhead, in accordance with the Accomplishment Instructions of the service bulletin. Accomplishment of these actions constitutes terminating action for the repetitive inspection requirements of paragraph (a)(1) of this AD.

(i) If any cracking is detected, prior to further flight, repair in accordance with the service bulletin, except as provided by paragraph (b) of this AD.

(ii) Repeat the inspections thereafter in accordance with the flight safety inspection program specified in Figures 1 and 3 of the service bulletin.

(b) Where the service bulletin specifies that the manufacturer may be contacted for disposition of certain repair conditions, repair in accordance with a method approved by the Manager, Seattle ACO; or in accordance with data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

NEW REQUIREMENTS OF THIS AD:

Groups 1 Through 3: Splice Area Work (Compliance Times)

Note 5: Airplanes inspected in accordance with paragraph (a)(2) of this AD are not required to be inspected in accordance with paragraphs (c) and (d) of this AD.

Note 6: Accomplishment of the actions specified in paragraphs (d)(1), (e), (e)(2), (g)(1), and (i) of this AD; in accordance with the original issue of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997; is acceptable for compliance with those paragraphs.

(c) For airplanes listed in Groups 1 through 3 in Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; on which the requirements of paragraph (a)(2) of this AD have NOT been accomplished prior to the effective date of this AD: Accomplish paragraph (d) of this AD at the applicable time specified in paragraph (c)(1), (c)(2), or (c)(3) of this AD.

(1) For airplanes on which the inspection specified in Boeing Service Bulletin 747-53-2333 has not been accomplished: Inspect prior to the accumulation of 10,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later.

(2) For airplanes on which the inspection specified in Boeing Service Bulletin 747-53-2333 has been accomplished, but the full modification specified in that service bulletin has not been accomplished: Inspect at the later of the times specified in paragraphs (c)(2)(i) and (c)(2)(ii) of this AD.

(i) Prior to the accumulation of 10,000 total flight cycles, or within 2,000 flight cycles after accomplishment of the last inspection in accordance with Boeing Service Bulletin 747-53-2333, whichever occurs first.

(ii) Within 1,000 flight cycles after the effective date of this AD.

(3) For airplanes on which the full modification specified in Boeing Service Bulletin 747-53-2333 has been accomplished: Inspect at the later of the times specified in paragraphs (c)(3)(i) and (c)(3)(ii) of this AD.

(i) Prior to the accumulation of 16,000 total flight cycles, or within 6,000 flight cycles after accomplishment of the full modification in accordance with Boeing Service Bulletin 747-53-2333, whichever occurs first.

(ii) Within 1,000 flight cycles after the effective date of this AD.

Groups 1 Through 3: Splice Area Work (Inspections)

(d) For airplanes listed in Groups 1 through 3 in Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; on which the requirements of paragraph (a)(2) of this AD have NOT been accomplished prior to the effective date of this AD: At the applicable time specified in paragraph (c) of this AD, accomplish paragraph (d)(1) or (d)(2) of this AD. Accomplishment of the requirements of this paragraph constitutes terminating action for the repetitive inspection requirements specified in paragraph (a)(1) of this AD, or, for the upper bulkhead splice area ONLY, for the inspection requirements specified in paragraph (a)(2) of this AD.

(1) *Plan "A"*: Perform detailed visual, ultrasonic, and HFEC inspections to detect cracking of the splice area, in accordance with Plan "A" and Figure 5, as defined in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000. Repeat the inspections thereafter in accordance with the flight safety inspection program as specified under Plan "A" and Figure 1 of the service bulletin.

(2) *Plan "B"*: Modify the skin splice plate and outer chord splice fitting in accordance with Plan "B," as defined in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000. Perform HFEC inspections and modification, then accomplish repeat open hole HFEC inspections, in accordance with the after-modification inspection program, as specified under Plan "B" and Figure 1 of the service bulletin. Accomplishment of the modification and inspections in accordance with this paragraph terminates the repetitive inspection requirements in paragraph (d)(1) of this AD.

Groups 4 Through 22: Splice Area Work (Compliance Time and Inspections)

(e) For airplanes listed in Groups 4 through 22 in Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000: Prior to the accumulation of 16,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later, perform detailed visual and ultrasonic inspections to detect cracking of the bulkhead forward flange in accordance with Figure 7 of the service bulletin, and accomplish the requirements of either paragraph (e)(1) or (e)(2) of this AD.

(1) *Plan "A"*: Perform open hole HFEC inspections to detect cracking of the splice area, in accordance with Plan "A" and Figure 6, as defined in the Accomplishment Instructions of the service bulletin. Repeat the inspections thereafter in accordance with the flight safety inspection program as specified under Plan "A" and in Figure 2 of the service bulletin.

(2) *Plan "B"*: Perform open hole HFEC inspections and modification of the upper bulkhead, bulkhead outer chord, web, skin, and splice components; in accordance with Plan "B," as defined in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000. Thereafter, repeat the open hole HFEC inspections in accordance with the after-modification inspection program as specified under Plan "B" and Figure 2 of the service bulletin. Accomplishment of the modification and inspections in accordance with this paragraph terminates the repetitive inspection requirements specified in paragraph (e)(1) of this AD.

All Airplanes: Lower Bulkhead/Stringer Interface Work (Compliance Times)

(f) For all airplanes (L/N 1 through 1254 inclusive): At the applicable time specified in paragraph (f)(1) or (f)(2) of this AD, accomplish paragraph (g) of this AD.

(1) For airplanes on which an inspection of the lower bulkhead has NOT been accomplished prior to the effective date of this AD in accordance with paragraph (a)(2) of this AD: Inspect prior to the accumulation of 20,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later.

(2) For airplanes on which an inspection of the lower bulkhead HAS been accomplished prior to the effective date of this AD in accordance with paragraph (a)(2) of this AD: Inspect prior to the accumulation of 20,000 total flight cycles, or at the time of the next scheduled inspection of the lower bulkhead in accordance with paragraph (a)(2)(ii) of this AD, whichever occurs later.

All Airplanes: Lower Bulkhead/Stringer Interface Work (Inspections)

(g) For all airplanes (L/N 1 through 1254 inclusive): At the applicable time specified in paragraph (f) of this AD, accomplish paragraph (g)(1) or (g)(2) of this AD. For airplanes having L/N 1 through 87 inclusive, accomplishment of the requirements of this paragraph constitutes terminating action for the inspection requirements specified in paragraph (a)(2) of this AD for the lower bulkhead/stringer interface area ONLY.

(1) *Plan "A"*: Perform detailed visual and either ultrasonic or open hole HFEC inspections, as applicable, to detect cracking of the lower bulkhead/stringer interface area, in accordance with Plan "A" and Figure 8, as defined in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000. Repeat the inspections thereafter in accordance with the flight safety program as specified under Plan "A" and Figures 3 and 8 of the service bulletin.

(2) *Plan "B"*: Except as provided by paragraph (h) of this AD, perform open hole HFEC inspections and modification of the lower bulkhead/stringer interface area, in accordance with Plan "B" and Figure 19, as defined in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000. Thereafter, repeat the detailed visual and either ultrasonic or open hole HFEC inspections, as applicable, in accordance with the after-modification inspection program as specified under Plan "B" and Figures 3 and 8 of the service bulletin. Accomplishment of the modification and inspections in accordance with this paragraph terminates the repetitive inspection requirements specified in paragraph (g)(1) of this AD.

Airplanes Modified With Original Service Bulletin: Post-Modification Work

(h) For any airplane (L/N 1 through 1254 inclusive) on which the modification specified in paragraph (g)(2) was accomplished prior to the effective date of this AD in accordance with the original issue of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997: Prior to the accumulation of 20,000 total flight cycles, or within 2,000 flight cycles after the effective date of this AD, whichever occurs later, accomplish post-modification work in accordance with Figure 26 of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000.

Repair

(i) Except as provided by paragraph (a)(1)(i) or (b) of this AD, if any cracking is detected during any inspection required by this AD, prior to further flight, repair in accordance with Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000. If any damage is found that is beyond the limits specified in the service bulletin, prior to further flight, repair in accordance with a method approved by the Manager, Seattle ACO; or in accordance with data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

Alternative Methods of Compliance

(j) (1) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle ACO. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

(2) Alternative methods of compliance, approved previously in accordance with AD 98-20-25, amendment 39-10791, are approved as alternative methods of compliance with paragraph (a) of this AD.

Note 7: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(k) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(l) Except as provided by paragraphs (a)(1), (a)(1)(i), (a)(1)(ii), (b), and (i) of this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997; or Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; as applicable.

(1) The incorporation by reference of Boeing Alert Service Bulletin 747-53A2390, Revision 1; including Appendices A, B, C, and D; dated July 6, 2000; is approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The incorporation by reference of Boeing Alert Service Bulletin 747-53A2390, dated July 31, 1997, was approved previously by the Director of the Federal Register as of October 7, 1998 (63 FR 50508, September 22, 1998).

(3) Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Effective Date

(m) This amendment becomes effective on July 16, 2001.

FOR FURTHER INFORMATION CONTACT: Rick Kawaguchi, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-1153; fax (425) 227-1181.

Issued in Renton, Washington, on May 25, 2001.

Vi L. Lipski, Manager, Transport Airplane Directorate, Aircraft Certification Service.